

## **Papahānaumokuākea Marine National Monument Permit Application Cover Sheet**

This Permit Application Cover Sheet is intended to provide summary information and status to the public on permit applications for activities proposed to be conducted in the Papahānaumokuākea Marine National Monument. While a permit application has been received, it has not been fully reviewed nor approved by the Monument Management Board to date. The Monument permit process also ensures that all environmental reviews are conducted prior to the issuance of a Monument permit.

### **Summary Information**

**Applicant Name:** Christopher Kelley

**Affiliation:** Hawaii Undersea Research Laboratory

**Permit Category:** Research

**Proposed Activity Dates:** October-December, 2008

**Proposed Method of Entry (Vessel/Plane):** Vessel, HURL ship Kaimikai-o-Kanaloa (KOK)

**Proposed Locations:** Deepwater habitat (>100 m) around Twin Banks and Nihoa

**Estimated number of individuals (including Applicant) to be covered under this permit:**

7

**Estimated number of days in the Monument:** 10

**Description of proposed activities:** (complete these sentences):

a.) The proposed activity would...

survey and obtain specimens from 2 deepwater ridges in the monument located northwest of Nihoa and south of West Twin Bank where corals and sponges are believed to exist in unusually high densities. The depth range of the activity will be 400-1800 m.

b.) To accomplish this activity we would ....

use the Hawaii Undersea Research Laboratory's ship (R/V Kaimikai-o-Kanaloa (KOK), one of the Pisces submersibles, the RCV-150 Remotely Operated Vehicle (ROV), and the KOK's Sea Beam Multibeam sonar mapping system. The Pisces IV or V will be deployed from the ship for a maximum of seven 8-hour dives between 600-1800 m. Four submersible dives will be used for visual/video surveys, two dives for collecting invertebrate specimens, primarily corals and sponges, and the seventh dive will be used for either surveys or specimen collecting depending on the outcome of the previous dives. The ROV will be deployed at night to conduct additional video surveys in the 400-900 m depth range. The Sea Beam system will be used to map the seafloor in the vicinity of the study sites as well as during transits in areas that have not been previously mapped.

c.) This activity would help the Monument by ...  
determining whether high density invertebrate communities exist on these two sites, which species are present in these communities, and what their relative abundances are. The Monument is funding this project for the purpose of identifying important deepwater resources within its boundaries. Deepwater corals and sponges are the priority animal groups for this project because recent research has found individual lifespans of several thousands of years in at least two species of corals. Deepwater sponges are also believed to be very long-lived however, determining their age is more difficult to accomplish. Both corals and sponges provide shelter and substrate for many other types of invertebrates (ophiuroids, crustaceans, echinoderms, etc) and in so doing function as keystone species for hard substrate deepwater communities. Furthermore, it is almost certain that these sites contain a large number of species presently unknown to science and/or Hawaiian waters. The location, extent, and composition these communities is therefore important information for the Monument's to acquire.

**Other information or background:** Similar to 2007, we would like to obtain a limited number of rock samples for the purpose of determining the age of these two ridges. The site south of Twin Banks was examined during the 2007 dives however we felt one additional survey dive and one specimen collecting dive would complete the dataset for this location. No submersible dives have ever been conducted on the second site northwest of Nihoa. Dr. Drazen is also planning on opportunistically conducting remote camera drops in the vicinity of these sites. This activity has been included in a separate permit application under his name and therefore the details are not included in this application.